

Claims

- [c1] I claim as my invention:
1. A golf ball comprising:
a core; and
a cover formed over the core, the cover composed of a thermosetting polyurethane material formed from reactants comprising a prepolymer blend comprising a polyurethane prepolymer and dimethyl methylphosphonate, and a curing agent.
 - [c2] 2. The golf ball according to claim 1 further comprising at least one boundary layer disposed between the core and the cover.
 - [c3] 3. The golf ball according to claim 1 wherein the polyurethane prepolymer is a polypropylene glycol terminated toluene diisocyanate prepolymer with a nitrogen-carbon-oxygen content ranging from 3.0% to 6.0%.
 - [c4] 4. The golf ball according to claim 2 wherein the boundary layer is composed of a blend of ionomers.
 - [c5] 5. The golf ball according to claim 1 wherein the polyurethane prepolymer is a polytetramethylene ether glycol terminated toluene diisocyanate prepolymer with a

nitrogen-carbon-oxygen content ranging from 3.75% to 7.0%.

- [c6] 6. A golf ball comprising:
a core comprising a polybutadiene mixture;
a boundary layer formed over the core; and
a cover formed over the boundary layer, the cover composed of a thermosetting polyurethane material formed from reactants comprising a prepolymer blend comprising polyurethane prepolymer and dimethyl methylphosphonate, and diethyl 2,4-toluenediamine.
- [c7] 7. A golf ball comprising:
a core; and
a cover formed over the core, the cover composed of a thermosetting polyurethane material formed from reactants comprising prepolymer blend comprising a polypropylene glycol terminated toluene diisocyanate prepolymer and dimethyl methylphosphonate, and a curative blend comprising 4,4'-methylenebis-(3-chloro,2,6-diethyl)-aniline and diethyl 2,4-toluenediamine.
- [c8] 8. A golf ball comprising:
a solid core comprising a polybutadiene mixture;
a boundary layer formed over the core, the boundary layer comprising a blend of ionomer materials; and

a cover formed over the core, the cover composed of a thermosetting polyurethane material formed from reactants comprising prepolymer blend comprising a polypropylene glycol terminated toluene diisocyanate prepolymer and dimethyl methylphosphonate, and a curative blend composed of 4,4'-methylenebis-(3-chloro,2,6-diethyl)-aniline and diethyl 2,4-toluenediamine.

[c9] 9. The golf ball according to claim 8 wherein the blend of ionomer materials of the boundary layer is composed of a sodium neutralized ethylene/methacrylic acid, a zinc neutralized ethylene/methacrylic acid and a magnesium neutralized terpolymer of ethylene, methacrylic acid and n-butyl acrylate.

[c10] 10. A golf ball comprising:
a core comprising a polybutadiene mixture, the core having a diameter ranging from 1.35 inches to 1.64 inches and having a PGA compression ranging from 50 to 90;
a boundary layer formed over the core, the boundary layer composed of a blend of ionomer materials, the boundary layer having a thickness ranging from 0.020 inch to 0.075 inch, the blend of ionomer materials having a Shore D hardness ranging from 50 to 75 as measured according to ASTM-D2240; and

a cover formed over the core, the cover composed of a thermosetting polyurethane material formed from reactants comprising a prepolymer blend comprising polypropylene glycol terminated toluene diisocyanate prepolymer and dimethyl methylphosphonate in a range of 1 to 10 parts per hundred parts of the comprising polypropylene glycol terminated toluene diisocyanate prepolymer, and a curative blend comprising 20 to 40 parts 4,4'-methylenebis-(3-chloro,2,6-diethyl)-aniline and 80 to 60 parts diethyl 2,4-toluenediamine, wherein the cover has a Shore D hardness ranging from 30 to 60 as measured according to ASTM-D2240, a thickness ranging from 0.015 inch to 0.040 inch.